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EXAMINER	
MATTIS, JASON E	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.**	**Applicant(s)**	
	10/723,775	KECSKEMETI, DELIA	
	Examiner	**Art Unit**	
	JASON E. MATTIS	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 13 March 2008.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 and 18-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 12-15 is/are allowed.

6)☒ Claim(s) 1-11,16 and 18-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Request for Continued Examination filed 3/13/08. Claims 1-16 and 18-25 are currently pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-8, 11, 19, 20, and 22-24 rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al. (U.S. Publication US 2005/0018683 A1) in view of Bragg (U.S. Pat. 6865611 B1) and Liu et al. (U.S. Publication US 2005/0083944 A1).

With respect to claim 1, Zhao et al. discloses a method of storing addresses in a memory **(See the abstract of Zhao et al. for reference to a method)**. Zhao et al. also discloses identifying a chain of zeros having a chain length and chain location bytes in an uncompressed IPv6 address **(See page 4 paragraph 50 of Zhao et al. for reference to determining the number of trailing zeros in an IPv6 address, with the determined number being the chain length and the chain location being the end of the address)**. Zhao et al. further discloses generating a compressed IPv6 address corresponding to the uncompressed IPv6 address by removing the chain of zero bytes

from the uncompressed IPv6 address and proving compression information corresponding to the chain length and chain location **(See page 3 paragraph 45, page 5 paragraph 85 and Figures 3 and 5 of Zhao et al. for reference to compressing an IPv6 address by removing the trailing zeros from an uncompressed address and providing compression information indicating the number of removed zeros and the location of the removed zeros)**. Zhao et al. does not specifically disclose that the chain of zero bytes is a longest chain of zero bytes in an uncompressed IPv6 address. Zhao et al. also does not specifically disclose the compression information being included in the IPv6 address.

With respect to claim 7, Zhao et al. discloses a method of storing addresses in a memory **(See the abstract of Zhao et al. for reference to a method)**. Zhao et al. also discloses determining a chain location and chain length of a chain of zero bytes removed from a compressed IPv6 addressed based on compression information **(See page 3 paragraph 45, page 5 paragraph 85 and Figures 3 and 5 of Zhao et al. for reference to determining the number of trailing zeroes removed from a compressed IPv6 address based on compression information)**. Zhao et al. further discloses comparing pre-chain location bytes of the compressed address to corresponding bytes of an uncompressed address and reporting a result when at least one byte is different, comparing bytes of the compressed address to the chain of zero bytes and reporting a result when at least one byte is non-zero, and comparing post-chain location bytes of the compressed address to corresponding bytes of the uncompressed address and reporting the result **(See page 5 paragraph 86 and Figure**

6 of Zhao et al. for reference to comparing the bytes of a received address to the bytes of stored compressed addresses and reporting a result as to whether the bytes of the address match or don't match the bytes of the compressed addresses). Zhao et al. does not specifically disclose comparing post-chain location bytes of the compressed address to corresponding bytes of the uncompressed address and reporting the result. Zhao et al. also does not specifically disclose the compression information being included in the IPv6 address.

With respect to claims 19 and 24, Zhao et al. discloses a method implemented as instructions stored on a computer readable medium **(See the abstract and page 6 paragraph 87 of Zhao et al. for reference to a method implemented as computer instructions stored on a computer readable medium)**. Zhao et al. also discloses receiving an message having an IPv6 destination address and comparing the received address to a compressed address stored in a routing table, receiving forwarding information when the received address matches the compressed address and forwarding the message according to the forwarding information **(See page 5 paragraph 86 and Figure 6 of Zhao et al. for reference to receiving a destination address, comparing the address to compressed addresses, receiving forwarding information when the address matches a compressed address, and forwarding the message corresponding the address according to the forwarding information)**. Zhao et al. further proving compression information corresponding to the chain length and chain location **(See page 3 paragraph 45, page 5 paragraph 85 and Figures 3 and 5 of Zhao et al. for reference to compressing an IPv6 address by**

removing the trailing zeros from an uncompressed address and providing compression information indicating the number of removed zeros and the location of the removed zeros). Although Zhao et al. does disclose compressing address information by removing a chain of zero bytes from an uncompressed version of an IPv6 address, Zhao et al. does not specifically disclose that the chain of zero bytes is a longest chain of zero bytes in an uncompressed IPv6 address. Zhao et al. also does not specifically disclose the compression information being included in the IPv6 address.

With respect to claims 1, 7, 19, and 24, Bragg, in the field of communications, discloses identifying and removing a longest chain of zero bytes in an uncompressed IPv6 address to form a compressed IPv6 address **(See column 7 line 54 to column 8 line 8 and Table 1 of Bragg for reference to removing all the zero byte chains from an IPv6 address, which inherently includes identifying and moving the longest zero byte chain since all zero byte chains are identified and removed, in order to form a compressed IPv6 address)**. Bragg also inherently discloses comparing post chain bytes of an uncompressed address to a compressed address since it is necessary to compare all address bytes to determine an address match. Identifying and removing a longest chain of zero bytes in an uncompressed IPv6 address to form a compressed IPv6 address has the advantage of further reducing storage space required for storing a compressed address such that long zero chains from areas other than the end of the address are removed from the address to create a further compressed address.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Bragg, to combine identifying and removing a longest chain of zero bytes in an uncompressed IPv6 address to form a compressed IPv6 address, as suggested by Bragg, with the system and method of Zhao et al., with the motivation being to further reduce storage space required for storing a compressed address such that long zero chains from areas other than the end of the address are removed from the address to create a further compressed address.

With respect to claims 1, 7, 19, and 24, Liu et al. discloses including compression information with a compressed IPv6 address **(See page 3 paragraphs 46-53 and Figure 5 of Liu et al. for reference to creating a compressed IPv6 address, as shown in Figure 5, including a prefix length, which is compression information, in the compressed address itself)**. Including compression information with a compressed IPv6 address has the advantage of allowing compressed addresses to be independently transmitted, received, and decompressed without requiring further information to be transmitted.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Liu et al., to combine including compression information with a compressed IPv6 address, as suggested by Liu et al., with the system and method of Zhao et al. and Bragg, with the motivation being to allow compressed addresses to be independently transmitted, received, and decompressed without requiring further information to be transmitted.

With respect to claim 2, Zhao et al. discloses the compression information being a single byte containing the chain length and location **(See page 3 paragraph 45 and Figure 3 of Zhao et al. for reference to storing compression information in a field 40 that is at most seven bits and contains an indication of a number of zeros removed, which is a chain length, as well as an inherent indication of the location of the removed zeros, which is the end of the address)**.

With respect to claim 3, Zhao et al. discloses the compression information being a single byte containing the chain location and length of the compressed IPv6 address **(See page 3 paragraph 45 and Figure 3 of Zhao et al. for reference to storing compression information in a field 40 that is at most seven bits and contains an indication of a number of zeros removed, which is inherently an indication of the number of bits left in the compressed address, as well as an inherent indication of the location of the removed zeros, which is the end of the address)**.

With respect to claim 4, Zhao et al. discloses that the single byte is the most significant byte of the compressed IPv6 address **(See page 3 paragraph 47 of Zhao et al. for reference to the fields being placed in any order, meaning field 40 may be the most significant byte)**.

With respect to claim 5, Zhao et al. discloses that the compression information is included in the compressed IPv6 address **(See page 3 paragraph 45 and Figure 3 of Zhao et al. for reference to the compression information fields being included with the compressed address as shown in Figure 3)**.

With respect to claim 6, the combination of Zhao et al. and Bragg discloses all the elements of claim 1, as shown above. Although the combination of Zhao et al. and Bragg does not specifically disclose the reverse process of uncompressing a compressed IPv6 address, using the reverse of the process disclosed by Zhao et al. and Bragg to uncompress a compressed IPv6 address would have been obvious to one of ordinary skill in the art at the time of the invention. Using the reverse of the process disclosed by Zhao to uncompress a compressed IPv6 address has the advantage of allowing the original full IPv6 address to be recovered from a compressed IPv6 address.

With respect to claim 8, Zhao et al. discloses the result being that the uncompressed address is equal to the compressed address **(See page 5 paragraph 86 and Figure 6 of Zhao et al. for reference to determining that an address matches a compressed address)**.

With respect to claim 11, Zhao et al. discloses that the number of pre-chain location bytes may be zero **(See page 3 paragraph 45 and Figure 3 of Zhao et al. for reference to storing the number of trailing zeros of a compressed address meaning that if the address is all zeros then there will be no pre-chain location bytes)**.

With respect to claim 20, Zhao et al. discloses determining a chain location and chain length of a chain of zero bytes removed from a compressed IPv6 addressed based on compression information **(See page 3 paragraph 45, page 5 paragraph 85 and Figures 3 and 5 of Zhao et al. for reference to determining the number of trailing zeroes removed from a compressed IPv6 address based on compression**

information). Zhao et al. also discloses comparing pre-chain location bytes of the compressed address to corresponding bytes of an uncompressed address and reporting a result when at least one byte is different, comparing bytes of the compressed address to the chain of zero bytes and reporting a result when at least one byte is non-zero, and comparing post-chain location bytes of the compressed address to corresponding bytes of the uncompressed address and reporting the result **(See page 5 paragraph 86 and Figure 6 of Zhao et al. for reference to comparing the bytes of a received address to the bytes of stored compressed addresses and reporting a result as to whether the bytes of the address match or don't match the bytes of the compressed addresses)**.

With respect to claim 22, Zhao et al. discloses comparing the destination address to a plurality of compressed addresses, determining when the destination address matches a compressed address, storing the matched address as a best address and further comparing the destination address to more specific compressed addresses, and receiving forwarding information for the best fit address when the comparisons are completed **(See page 5 paragraph 86 and Figure 6 of Zhao et al. for reference to comparing the destination address to compressed addresses, finding a match for destination address in the compressed addresses, continuing comparisons with more specific compressed addresses in a routing tree structure, determining the best address based on the comparisons, and receiving forwarding information for the best address)**.

With respect to claim 23, Zhao et al. discloses that the number of pre-chain location bytes may be zero **(See page 3 paragraph 45 and Figure 3 of Zhao et al. for reference to storing the number of trailing zeros of a compressed address meaning that if the address is all zeros then there will be no pre-chain location bytes)**.

4. Claims 9, 10, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al. in view of Bragg and in further view of Dietrich (U.S. Publication US 2003/0193956 A1).

With respect to claims 9, 10, and 21, the combination of Zhao et al. and Bragg does not disclose applying a mask associated with the addresses, using the mask to determine if further comparison is needed, and comparing one byte at a time.

With respect to claims 9, 10, and 21, Dietrich, in the field of communications, discloses applying a mask associated with addresses, using the mask to determine if further comparison is needed, and comparing one byte at a time **(See page 3 paragraph 55 to page 5 paragraph 76 and Figures 3-5 of Dietrich for reference to comparing addresses one byte at a time and for reference to applying a mask to the addresses to determine if further comparison of bytes is needed)**. Applying a mask associated with addresses, using the mask to determine if further comparison is needed, and comparing one byte at a time has the advantage of pipelining the address comparison process such that it is performed in a faster, more efficient manner.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Dietrich, to combine applying a mask associated with addresses, using the mask to determine if further comparison is needed, and comparing one byte at a time, as suggested by Dietrich, with the system and method of Zhao et al. and Bragg, with the motivation being to pipeline the address comparison process such that it is performed in a faster, more efficient manner.

5. Claims 16, 18, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al. in view of Bragg, Liu et al., and Dunk (U.S. Publication US 2004/0264465 A1).

With respect to claims 16 and 25, Zhao et al. discloses a method implemented as instructions stored on a computer readable medium **(See the abstract and page 6 paragraph 87 of Zhao et al. for reference to a method implemented as computer instructions stored on a computer readable medium)**. Zhao et al. also discloses compressing an uncompressed IPv6 address into a corresponding compressed IPv6 address **(See page 3 paragraph 45, page 5 paragraph 85 and Figures 3 and 5 of Zhao et al. for reference to compressing an uncompressed IPv6 address)**. Although Zhao et al. does disclose compressing address information by removing a chain of zero bytes from an uncompressed version of an IPv6 address and adding compression information to the compressed address corresponding to the chain length and location, Zhao et al. does not specifically disclose that the chain of zero bytes is a longest chain of zero bytes in an uncompressed IPv6 address. Zhao et al. does also

not disclose receiving an OSPF message containing an LSA having an uncompressed IPv6 address and storing the LSA in a link state database. Zhao et al. also does not specifically disclose the compression information being included in the IPv6 address.

With respect to claim 16 and 25, Bragg, in the field of communications, discloses identifying and removing a longest chain of zero bytes in an uncompressed IPv6 address to form a compressed IPv6 address **(See column 7 line 54 to column 8 line 8 and Table 1 of Bragg for reference to removing all the zero byte chains from an IPv6 address, which inherently includes identifying and moving the longest zero byte chain since all zero byte chains are identified and removed, in order to form a compressed IPv6 address)**. Identifying and removing a longest chain of zero bytes in an uncompressed IPv6 address to form a compressed IPv6 address has the advantage of further reducing storage space required for storing a compressed address such that long zero chains from areas other than the end of the address are removed from the address to create a further compressed address.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Bragg, to combine identifying and removing a longest chain of zero bytes in an uncompressed IPv6 address to form a compressed IPv6 address, as suggested by Bragg, with the system and method of Zhao et al., with the motivation being to further reduce storage space required for storing a compressed address such that long zero chains from areas other than the end of the address are removed from the address to create a further compressed address.

With respect to claims 16 and 25, Liu et al. discloses including compression information with a compressed IPv6 address **(See page 3 paragraphs 46-53 and Figure 5 of Liu et al. for reference to creating a compressed IPv6 address, as shown in Figure 5, including a prefix length, which is compression information, in the compressed address itself)**. Including compression information with a compressed IPv6 address has the advantage of allowing compressed addresses to be independently transmitted, received, and decompressed without requiring further information to be transmitted.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Liu et al., to combine including compression information with a compressed IPv6 address, as suggested by Liu et al., with the system and method of Zhao et al. and Bragg, with the motivation being to allow compressed addresses to be independently transmitted, received, and decompressed without requiring further information to be transmitted.

With respect to claim 18, the combination of Zhao et al. and Bragg does not disclose creating an OSPF routing table based on the link state database.

With respect to claims 16, 18, and 25, Dunk, in the field of communications, discloses receiving an OSPF message containing an LSA having an uncompressed IPv6 address, storing the LSA in a link state database, and creating an OSPF routing table based on the link state database **(See page 1 paragraphs 9-10 and page 4 paragraph 41 of Dunk for reference to receiving OSPF messages containing an LSA having an IPv6 address, storing the LSA, and creating an OSPF routing table**

based on the stored LSA). Receiving an OSPF message containing an LSA having an uncompressed IPv6 address, storing the LSA in a link state database, and creating an OSPF routing table based on the link state database has the advantage of providing a simple way to distribute and store routing information throughout a routing network.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Dunk, to combine receiving an OSPF message containing an LSA having an uncompressed IPv6 address, storing the LSA in a link state database, and creating an OSPF routing table based on the link state database, as suggested by Dunk, with the system and method of Zhao et al., Bragg, and Liu et al., with the motivation being to provide a simple way to distribute and store routing information throughout a routing network.

Allowable Subject Matter

6. Claims 12-15 are allowed.

Response to Arguments

7. Applicant's arguments with respect to claims 1-11, 16, and 18-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON E. MATTIS whose telephone number is (571)272-3154. The examiner can normally be reached on M-F 8AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on (571)272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason E Mattis
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